

Response to short comment posted by M. Wiegner

We thank M. Wiegner for taking the time to read and we appreciate the helpful comment and suggestions for improving the manuscript given in this short comment.

Comments are repeated in black, and answers are given in blue.

With this short comment I want to suggest to better emphasizing the previous work on this topic. It can be acknowledged in the introduction and in section 4; the latter can easily be extended to avoid the impression that studies beyond the "Norwegian ash project" (page 11, line 4) are more or less lacking.

The authors agree that including previous work on model comparison to lidar data would be beneficiary for the manuscript. References are added in the text were they are appropriate under the lidar section:

p.12 l.5:

“Webley et al. (2012) found by studying model results from WRF-Chem that ash particles larger than 62.5 μm were not transported further than 120 km from the volcano, indicating that ash particles larger than what are included in this study already have fallen out by the time the air mass reaches the lidar sites and will not affect the observed ash layer.”

p.12 l.13:

“Even though a lidar does not measure concentrations, it is possible to retrieve these using mass-to-extinction coefficients. Ansmann et al. (2011) and Wiegner et al. (2012) estimated maximum ash concentrations of around 1100 $\mu\text{g m}^{-3}$ with around 40 % uncertainty over Hamburg and Munich (lidar situated actually at Maisach) on 17 April respectively, at similar times when maximum concentrations where found in our model results.”

p.12 l. 15

“The model shows this shift in ash height from the higher first part of the plume to the lower second part of the plume for all the stations, and this is also found in several other ash transport model comparisons to lidar observations over Europe (Emeis et al., 2011; Folch et al., 2012; Webley et al., 2012; Vogel et al., 2014).”

Sidenote

The EARLINET site "Munich" is in fact "Maisach" (25 km north west of Munich). It is operated by the Ludwig-Maximilians-Universität, Munich; this may be the reason that it is often labeled as "Munich".

The authors are thankful for pointing this out, and further explanation for this. Since in the dataset the station is labelled Munich, this is the name that is used in the manuscript, but with an explanation that the station is actually situated in Maisach (see above).

References:

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